

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JIM OTTER

Appeal No. 2004-1869
Application No. 09/738,591

ON BRIEF

Before OWENS, TIMM, and JEFFREY T. SMITH, *Administrative Patent Judges*.
TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal involves claims 1-5, 7, 20-23, 25, 26, and 28. Claims 8-19 have been withdrawn by the Examiner. Claim 27 has been allowed. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 134.

INTRODUCTION

The claims are directed to a method for making a film for use with a heat transfer component. Claims 1, 5, 7, and 21 are illustrative:

1. A method for making a film for use with a heat transfer component comprising the steps of:

applying a plurality of polar particulates to a surface of a film;
then adhering said plurality of polar particulates to said surface of said film; and
then adding said film to said heat transfer component.

5. The method as recited in claim 1 further including the step of applying an adhesive substance to said surface of said film, and wherein the step of adhering said plurality of polar particulates comprises pressing said plurality of polar particulates into said adhesive substance.

7. The method as recited in claim 1 further comprising the step of coating an outer surface of said plurality of polar particulates with a coating.

21. The method as recited in claim 1 wherein said plurality of polar particulates are one of alumina, zirconia, wollastonite, talc, and titanium dioxide.

As evidence of unpatentability, the Examiner relies upon the following prior art references:

McCulloch et al. (McCulloch)	3,973,510	Aug. 10, 1976
Kaneko et al. (Kaneko)	4,421,789	Dec. 20, 1983
Bentley	4,848,314	Jul. 18, 1989
Hayakawa et al. (Hayakawa)	6,013,372	Jan. 11, 2000
Linford	6,132,801	Oct. 17, 2000

The specific rejections are as follows:

1. Claims 1-4, 20, 22, 23, 26 and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bentley in view of Kaneko (Answer, pp. 3-4).

2. Claims 5 and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bentley in view of Kaneko and further in view of McCulloch (Answer, p. 5).
3. Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bentley in view of Kaneko and further in view of Linford (Answer, pp. 5-6).
4. Claims 21 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bentley in view of Kaneko and further in view of Hayakawa (Answer, pp. 6-7).

We affirm the decision of the Examiner with respect to all four rejections. In so doing, we incorporate the reasoning of the Examiner provided in the Answer and add the following.

OPINION

Obviousness of Claims 1-4, 20, 22, 23, 26, and 28

The Examiner rejects claims 1-4, 20, 22, 23, 26, and 28 as obvious over Bentley in view of Kaneko. The claims stand or fall together (Brief, p. 3). We select claim 1 to represent the issues on appeal in accordance with 37 CFR § 1.192(c)(7)(2003).

Claim 1 is directed to a method for making a film for use with a heat transfer component. In the method, a plurality of polar particulates are applied and bonded to the surface of a film prior to adding the film to the heat transfer component. There is no dispute that Bentley describes adding a film to a heat transfer component as claimed. The Appellant finds that

Bentley teaches “a condensing furnace having a thin layer of a corrosion resistant material adhesively bonded to a metal blank (Brief, p. 3).” The condensing furnace is a heat exchanger part and the corrosion resistant material is a thermoplastic polymer film (Answer, p. 3). The Examiner acknowledges that Bentley is silent towards the use of polar particulates on the sheet material (Answer, p. 3).

The Examiner cites Kaneko for its teaching of applying by lamination a similar corrosion resistant polymer film to similar heat exchanger parts (Final Rejection, p. 4; *see also* Answer, p. 3). In addition, Kaneko teaches applying polar silica particulates, in any convenient manner, to a polymer coated metal substrate in order to increase the wettability of the surface and hence increase the process efficiency (Answer, p. 3).

Appellant argues that the combination of the teachings of Bentley and Kaneko does not render the claims obvious because the Appellant claims applying and adhering the plurality of polar particulates to the surface of the film prior to applying the film to the heat exchanger component (Brief, p. 4). Appellant correctly states that Kaneko teaches applying the film to the heat exchanger component in a solution form, drying it, and then applying a silica solution to the film to add the silica particulates to the film (Brief, p. 4; Reply Brief, pp. 1-2). Appellant then argues that using the teachings of Kaneko for the application of the polymer film and silica particulates to the metal surface in the process of Bentley does not disclose or suggest Appellant’s claimed process (Brief, p. 4). However, the Examiner has not relied upon Kaneko

for a teaching of how to apply a polymer film to a metal substrate as Bentley describes a preformed polymer sheet laminated to a metal surface. The Examiner relies upon Kaneko for the teaching of applying polar silica particulates to a polymer surface in order to increase the wettability of the surface. In making a determination of obviousness, one must look at what the combined teachings of the references would have suggested to those of ordinary skill in the art.

As stated in *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871,881 (CCPA 1981):

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.

Here, the combined teachings of Bentley and Kaneko would have suggested applying the polar particulates of Kaneko on the film of Bentley. Bentley describes a process of laminating a polymer film onto the metal substrate of a heat transfer component to provide corrosion resistance (Answer, p. 3). Kaneko indicates that there is a problem of inadequate wettability with such corrosion resistant films and applies silica particulates to the polymer film to increase wettability to solve the problem (Answer, p. 3). In the process of Kaneko the polymer film does not exist until it is formed on the metal substrate, so Kaneko applies the silica particles after applying the polymer to the metal substrate. One of ordinary skill in the art practicing the process of Bentley utilizes a preformed polymer film. The preformed film described in Bentley is in its final chemical form before lamination to the metal substrate (Bentley, col. 4, ll. 26-33). The suggestion of applying the polar silica particulates to the preformed polymer film of Bentley

prior to laminating the polymer film to the metal surface flows from the references when one takes into account the treatment options one of ordinary skill in the art would have recognized when practicing the modification in the process of Bentley.

We conclude that the Examiner has established a *prima facie* case of obviousness with respect to the subject matter of claims 1-4, 20, 22, 23, 26 and 28 which has not been sufficiently rebutted by Appellant.

Obviousness of Claims 5 and 28

The Examiner rejects claims 5 and 28 as obvious over Bentley in view of Kaneko and further in view of McCulloch. The claims stand or fall together (Brief, p. 3). We select claim 5 to represent the issues on appeal in accordance with 37 CFR § 1.192(c)(7)(2003).

Claim 5 further limits claim 1 to require applying an adhesive substance to the surface of the film and that the step of adhering the plurality of polar particulates comprises pressing the plurality of polar particulates into the adhesive substance. The Examiner finds that Bentley and Kaneko are silent towards applying the polar particulates by pressing them into an adhesive applied to the surface of the polymer film (Answer, p. 5). The Examiner cites McCulloch for its teaching of applying silica particulates to an adhesive coated surface by blowing the particulates onto the tacky adhesive coating which necessarily presses the particulates into the adhesive (Answer, p. 5).

Appellant argues that there is no suggestion to employ a tacky adhesive layer in the combination of Bentley and Kaneko in order to adhere the silica particulates to the polymer film

because Kaneko teaches applying the silica particulates to the film as a solution and moisture is removed to adhere the silica particles to the film (Brief, p. 5; Reply Brief, p. 2). However, Appellant does not address the finding of the Examiner with regard to Kaneko that the silica particulates can be applied to the polymer film, in any convenient manner, including as a powder (Answer, p. 9). It is well settled that with regard to the issue of obviousness, the combined teachings of the prior art as a whole must be considered. *EWP Corp. v Reliance Universal, Inc.*, 755 F.2d 898, 907, 225 USPQ 20, 25 (Fed. Cir.), *cert. denied*, 474 U.S. 843 (1985). In addition, a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in their art, including non-preferred embodiments. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 807, 10 USPQ2d 1843, 1847 (Fed. Cir. 1989). Appellant focuses on the preferred embodiment of Kaneko of applying the silica particulates as a solution and ignores the broader teachings of Kaneko and, additionally, ignores the teachings of McCulloch. Appellant has failed to convince us of reversible error on the part of the Examiner.

We conclude that the Examiner has established a *prima facie* case of obviousness with respect to the subject matter of claims 5 and 28 which has not been sufficiently rebutted by Appellant.

Obviousness of Claim 7

The Examiner rejects claim 7 as obvious over Bentley in view of Kaneko and further in view of Linford.

Claim 7 further limits claim 1 to require coating an outer surface of the plurality of polar particulates.

The Examiner finds that Bentley and Kaneko are silent towards coating the outer surface of the polar silica particulates (Answer, p. 6). The Examiner cites Linford for its teaching of applying a polymer coating to silica particulates as a coupling agent when embedding the particulates in a polymer or plastic to prevent de-bonding (Answer, p. 6).

Appellant argues that there is no suggestion to employ an adhesive polymer coating in the combination of Bentley and Kaneko in order to adhere the silica particulates to the polymer film because Kaneko teaches applying the silica particulates to the film as a solution (Brief, p. 5; Reply Brief, p. 2). As discussed above in relation to claim 5, Applicant does not address the finding of the Examiner with regard to Kaneko that the silica particulates can be applied in any convenient manner including as a powder (Answer, p. 10). Appellant again fails to convince us of reversible error on the part of the Examiner.

Appellant further argues that the silica particulates taught in Kaneko form a hydrophilic surface and that if the silica particulates are coated then the surface would no longer be hydrophilic and the effect of increased wettability would be lost (Answer, pp. 5-6). It is noted that the specification teaches using a surface treatment (coating) for the particulates either to enhance adhesion of the particulates to the polymer film or to enhance wettability and that any coating can be utilized to enhance adhesion or wettability (page 6, lines 4-9). Appellant provides no guidance in choosing what type of coating to apply other than to use maleic anhydride when

the polymer film is polyester. It appears Appellant considers one of ordinary skill in the art to have the knowledge to determine what types of coatings to utilize that also provide the desired results of the claimed process of increased wettability of the surface. Similarly, Linford teaches a wide variety of polymers for coating the silica particulates, some of which are hydrophilic (Linford, col. 4, ll. 60-67) and one skilled in the art would have had the requisite knowledge needed to determine what type of polymer to utilize for coating the silica particulates to ensure adequate adhesion to the polymer film and provide the desired hydrophilic nature of the surface in order to increase the wettability of the film. Appellant has not convinced us that one of ordinary skill in the art would not have had the required knowledge to select an appropriate polymer for coating the silica particulates.

We conclude that the Examiner has established a *prima facie* case of obviousness with respect to the subject matter of claim 7 which has not been sufficiently rebutted by Appellant.

Obviousness of Claims 21 and 25

The Examiner rejects claims 21 and 25 as obvious over Bentley in view of Kaneko and further in view of Hayakawa. The claims stand or fall together (Brief, p. 3). We select claim 21 to represent the issues on appeal in accordance with 37 CFR § 1.192(c)(7)(2003).

Claim 21 further limits claim 1 to require that the plurality of polar particulates are one of alumina, zirconia, wollastonite, talc, and titanium dioxide.

The Examiner finds that Bentley and Kaneko are silent towards applying polar particulates from one of the claimed list. The Examiner cites Hayakawa for its teaching of

applying polar titanium dioxide (titania) particulates alone, or in combination with silica, to fins of a heat exchanger to increase the wettability of the fin surface (Answer, pp. 6, 11).

Appellant argues that Kaneko teaches that the silanol groups of the silica particulates provide a hydrophilic surface and that titanium dioxide particulates would not have such silanol groups (Brief, p. 6).

We agree with the Examiner's findings and conclusions that while the titanium dioxide particulates do not contain silanol groups, the prior art recognizes that titanium dioxide performs the same function for the same application.

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We conclude that the Examiner has established a *prima facie* case of obviousness with respect to the subject matter of claims 21 and 25 which has not been sufficiently rebutted by Appellant.

CONCLUSION

To summarize, the decision of the Examiner to reject claims 1-5, 7, 20-23, 25, 26, and 28 under 35 U.S.C. § 103(a) is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

TERRY J. OWENS
Administrative Patent Judge

CATHERINE TIMM
Administrative Patent Judge

JEFFREY T. SMITH
Administrative Patent Judge

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